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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,623	01/10/2002	Masato Hayashi	Q68071	6584
7590	12/31/2003		EXAMINER	
SUGHRUE, MION, ZINN MACPEAK & SEAS, PLLC 2100 Pennsylvania Avenue, N.W. Washington, DC 20037-3213			SANTIAGO, MARICELI	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary****Application No.**

10/041,623

**Applicant(s)**

HAYASHI, MASATO

**Examiner**

Mariceli Santiago

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,6,7,9,10 and 12-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3,6,7,9 and 12-18 is/are allowed.
- 6) ☒ Claim(s) 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

The Amendment, filed on October 14, 2003, has been entered and acknowledged by the Examiner.

Cancellation of claims 2, 4, 5, 8 and 11 has been entered.

The indicated allowability of claim 10 is withdrawn in view of the reference(s) to Shinohara (US 5,701,056), Kado et al. (JP 11213892 A), Okumura et al. (US 6,100,633) and Hampden-Smith et al. (US 6,153,123). Rejections based on the cited reference(s) follow.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara (US 5,701,056) in view of Kado et al. (JP 11213892 A), and further in view of Okumura et al. (US 6,100,633) in view of Hampden-Smith et al. (US 6,153,123).

Regarding claim 10, Shinohara discloses a plasma display panel comprising a rear-side glass substrate (10) provided with a plurality of data electrodes (8) covered by a white dielectric layer (7), a front-side glass substrate (1) provided with a plurality of transparent electrodes (2) and a plurality of trace electrodes (11), which are covered by a protection layer (4) and a transparent dielectric layer (3), wherein both the rear-side glass substrate and the front-side glass substrate are sealed by a sealing material, a plurality of discharge cells (12) formed

between the rear-side glass substrate (10) and the front-side glass substrate (1), which are separated by partitions (6) formed on the white dielectric layer (7) wherein the partitions serve as walls of the discharge cells, and a fluorescent layer (9) made of a fluorescent material covering the white dielectric layer (7) and the partitions (6).

Shinohara fails to disclose the limitations of the fluorescent layer covering the protection layer of the front-side glass substrate, wherein the fluorescent material comprises phosphor mono-crystals particles having a particle diameter of 10-200 nm and wherein the fluorescent layer is a film having a thickness of 0.05-0.5 micrometers.

In regards to the limitation of the fluorescent layer covering the protection layer of the front-side glass substrate, in the same field of endeavor, Kado discloses a plasma display panel wherein a fluorescent layer (31) is formed in such a manner as to cover the protection layer (14) of the front-side glass substrate (11) in order to increase the phosphor material surface area and increase brightness and enhance the luminous efficiency of the plasma display panel. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the phosphor layer distribution disclosed by Kado in the plasma display panel of Shinohara in order to increase the phosphor material surface area and increase brightness and enhance the luminous efficiency of the plasma display panel.

In regards to the limitation of the fluorescent material comprising phosphor mono-crystals particles having a particle diameter of 10-200 nm and the fluorescent layer having a thickness of 0.05-0.5 micrometers, Okumura discloses a plasma display panel wherein a fluorescent layer comprises a fluorescent material made of particles each having a diameter of 100-200 nanometers (Column 4, lines 3-30) and the fluorescent layer having a thickness of 0.3-0.5 micrometers (Column 7, lines 38-48) in order to increase the brightness of the plasma display panel. Okumura is silent in regards to the limitation of the particles being mono-crystal

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particles. In the same field of endeavor, Hampden-Smith discloses a plasma display panel (Column 35, lines 28-33) having a fluorescent layer comprised of single crystal particles having a diameter of 25-100 nanometers, the single crystal particles increase the luminescent efficiency and brightness of the display panel (Column 38, lines 47-65). Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the mono-crystal phosphor particles disclosed by the combination of the Okumura and the Hampden-Smith references in the plasma display panel of Okumura in order to further increase the luminescent efficiency and brightness of the display panel.

***Allowable Subject Matter***

Claims 1, 3, 6, 7, 9 and 12-18 are allowed over the prior art of record.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 1, and specifically comprising the limitation of a color filter layer for selectively transmitting only a predetermined-wavelength visible light provided between the fluorescent layer and the reflection layer, wherein the color filter layer comprises an inorganic pigment having an average particle diameter of 10-200 nm..

Regarding claims 3, 6, 7 and 9, claims 3, 6, 7 and 9 are allowable for the reasons given in claim 1 because of their dependency status from claim 1.

Regarding claim 12, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 12, and specifically comprising the limitation of a color filter layer for selectively transmitting only a predetermined-wavelength visible light

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provided between the fluorescent layer and the reflection layer, wherein the color filter layer has a thickness of 0.1-5  $\mu\text{m}$ .

Regarding claims 13-18, claims 13-18 are allowable for the reasons given in claim 12 because of their dependency status from claim 12.

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariceli Santiago whose telephone number is (703) 305-1083. The examiner can normally be reached on Monday-Friday from 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (703) 305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

*ms 12/28/03*  
Mariceli Santiago  
Patent Examiner  
Art Unit 2879

*[Signature]*  
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